



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,885	09/27/2005	Toshiaki Shirosaka	D3301-00149	1713
8933	7590	02/02/2007	EXAMINER	
DUANE MORRIS, LLP IP DEPARTMENT 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196			MANCUSO, HUEDUNG XUAN CAO	
			ART UNIT	PAPER NUMBER
			2821	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/02/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,885	<b>Applicant(s)</b> SHIROSAKA ET AL.	
	<b>Examiner</b> Huedung Cao Mancuso	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-17 is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) 2,4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/22/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, and 3-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Horii Shotaro Kataro (JP 2003-8328 A).

Regarding claim 1, Karato teaches a variable directivity antenna comprising a first antenna group including first and second antennas for receiving a radio wave in a first frequency band, said first and second antennas being disposed in parallel with and spaced from each other by a distance less than a half of a wavelength in said first frequency band, said first and second antennas exhibiting an 8-shaped directivity along a line perpendicular to the length direction thereof; and phase shifting means for adjusting phases of received signals from said first and second antennas and combining the phase-adjusted signals in such a manner that the resultant signal selectively assumes a first directivity state in which said resultant signal exhibits a directivity in a first direction which is from said first antenna toward said second antenna, and a second directivity state in which said resultant signal exhibits a directivity in a second

Art Unit: 2821

direction which is from said second antenna toward said first antenna see Karato paragraphs [0011,0021], and figures 1, 2, and 5.

Regarding claim 3, wherein received signals from said first and second antennas are supplied to said phase shifting means after being amplified in first and second amplifiers see Karato paragraphs [0011,0021], and figures 1, 2, and 5.

Regarding claim 4, wherein said first and second antennas are formed on a single printed circuit board see Karato paragraphs [0011,0021], and figures 1, 2, and 5.

### ***Allowable Subject Matter***

3. Claims 6-17 are allowed.

The following is an examiner's statement of reasons for allowance: the Prior art does not explicitly teach that a first antenna group including first and second antennas for receiving a radio wave in a first frequency band, said first and second antennas being disposed in parallel and spaced by a distance less than a half of a wavelength in said first frequency band, said first and second antennas exhibiting an 8-shaped directivity along a line perpendicular to the length direction thereof; a signal combining means for adjusting in value and combining an output signal of said first phase shifting means in said first or second directivity state and an output signal of said second phase shifting means in said third or fourth directivity state, and providing an output signal exhibiting a directivity in a selected one of said first through fourth directions and directions between said first through fourth directions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Claims 2, and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the Prior art does not specifically teach that combining means to which the received signals from said first and second antennas are supplied; a first fixed phase shifter disposed between said combining means and said first antenna; and variable phase shifting means disposed between said second antenna and said combining means; said variable phase shifting means, in said first directivity state, coupling the received signal from said second antenna as it is to said combining means, and, in said second directivity state, coupling a second fixed phase shifter between said second antenna and said combining means; said first fixed phase shifter providing such an amount of phase shift that, in said first directivity state, signals coming from said second direction received by said first and second antennas are substantially in opposite phase, said second fixed phase shifter providing such an amount of phase shift that, in said second directivity state, a received signal from said second antenna is substantially in opposite phase with an output signal of said first fixed phase shifter; and the first and

Art Unit: 2821

second antennas are first and second dipole antennas, respectively, having their entire lengths so selected as to receive a radio wave in said first frequency band; extension elements are disposed in line with and outward of opposite ends of each said dipole antennas; the sum of the lengths of said first dipole antenna and said extension elements disposed outward of said first dipole antenna is such as to receive a radio wave in a second frequency band lower than said first frequency band, the sum of the lengths of said second dipole antenna and said extension elements disposed outward of said second dipole being such as to receive a radio wave in said second frequency band; and switch means are connected between said first dipole antenna and said extension elements disposed outward of said first dipole antenna, and between said second dipole antenna and said extension elements disposed outward of said second dipole antenna.

***Inquiries***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Mancuso whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens, can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Mancuso  
Patent Examiner

A handwritten signature in black ink, appearing to read 'Huedung Mancuso', with a stylized flourish at the end.